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Massachusetts

For Immediate Release
June 26, 2006

Contact: **Vanessa Gulati**
617-626-1119

STATE DEMONSTRATES WATER QUALITY IMPROVEMENT PROJECTS AT SILVER LAKE IN WILMINGTON

Today, state, federal and municipal officials held a visual demonstration of new low-impact development (LID) techniques at Silver Lake in Wilmington. The techniques are designed to improve water quality in the lake, and ultimately to address both drought and flooding problems in the Ipswich River, which was recently designated as the third most "endangered" river in the nation.

Massachusetts Department of Conservation and Recreation (DCR) Commissioner Stephen H. Burrington, Wilmington Town Administrator Michael A. Caira and U.S. Environmental Protection Agency (EPA) Watershed and Nonpoint Source Branch Chief Gerald Potamis were joined by local residents in celebrating the completion of two stormwater improvement demonstration projects at the lake.

Rainwater carries pollutants from goose droppings, cars, fertilizers and other sources into the lake, degrading the quality of the lake water and sometimes forcing the town to close the beach. The LID projects, which demonstrate innovative, but "low-tech" solutions that use the natural processes of soil and plant filtration to purify and recharge rainwater to the ground, cost a total of $450,000. Funding included $300,000 from a U.S. EPA Targeted Watershed Grant to DCR and $150,000 in matching funds from the Town of Wilmington.

The first project involved repaving the beach parking lot with four types of permeable paving materials that allow stormwater to flow through the pavement, instead of across it, and to filter the runoff before it reaches Silver Lake. In the center and around the perimeter of the parking lot, bioretention cells – landscaped areas that use special plantings and soils to temporarily retain and filter stormwater – have been constructed to handle any excess runoff from very heavy rains and to improve the lot's aesthetic value.

"Residents have commented favorably on the noticeable improvements to the Silver Lake parking area. They are also pleased to learn that we expect fewer beach closures as a result of this work," said Wilmington Town Manager Michael A. Caira.

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In addition to changes within the parking lot, two planted swales were built at either end of the beach to replace piped outfalls. The soil and plantings in these swales filter stormwater coming from the surrounding neighborhood before it reaches the lake. They are also less attractive to geese than the previous grassy landscaping. Encouraging geese to flock elsewhere is an added benefit, as goose droppings are suspected of being one source of harmful bacteria in the lake.

The second Silver Lake project is located across the lake from the beach, on Silver Lake Avenue and Dexter Street. "Rain gardens" and permeable pavers (a type of permeable paving material that can also be seen in the parking lot) were installed along the street. Similar to the bioretention cells in the beach parking lot, rain gardens are landscaped depressions that incorporate plantings and soils that temporarily hold stormwater and let it soak into the ground, recharging the water table, rather than running directly into the lake. Runoff from roofs and driveways has been redirected into these areas and away from the storm sewer system, which will reduce the volume of stormwater running into the lake.

"We're very excited to see these low-impact development techniques applied in an area where the water quality improvements and the groundwater recharge benefits are both so critical," expressed DCR Commissioner Stephen H. Burrington. "The increased recharge from these kinds of techniques not only helps keep the Ipswich River flowing during dry times, but also reduces the kind of flash flooding problems that have been so serious recently."

Over the next year, the U.S. Geological Survey will collect and analyze samples from monitoring wells beneath the parking lot and from the storm water system on Silver Lake Avenue. The data will help quantify the benefits from the LID features installed.

The Silver Lake work in Wilmington represents two of nine projects aimed at demonstrating techniques to address both drought and flooding problems in the Ipswich River. All the projects are funded under a $1.05 million Targeted Watershed Grant awarded to DCR by EPA in 2004, with additional matching funds provided by project partners throughout the Ipswich River Watershed.

"EPA is glad to be involved in this project demonstrating low-impact development techniques at Wilmington's Silver Lake," said Robert W. Varney, regional administrator of the U.S. EPA's New England office. "This is a great example that innovation can grow from the collaboration of state and federal agencies working together with the public to solve environmental problems. We are especially hopeful that these techniques may help the Ipswich River to come back to better health."

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Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston MA 02114-2119
617-626-1250 617-626-1351 Fax
www.mass.gov/dcr

Mitt Romney
Governor

Kerry Healey
Lt. Governor

Stephen R. Pritchard, Secretary
Executive Office of Environmental Affairs

Stephen H. Burrington, Commissioner
Department of Conservation & Recreation